
David L. Cull MD
Department of Surgery
University of South Carolina School of Medicine- Greenville

Karen Woo MD
Department of Surgery
UCLA David Geffen School of Medicine

Disclosures

• None

AV Access Literature Limitations

• Few randomized controlled trials
• Retrospective case series- strong treatment bias
• Lack standardized outcome endpoints

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  – What factors should be considered in vascular access selection? Vein size? Age? BMI? Comorbidities?
  – When is it OK to place an AV graft, Catheter?
Problems With Consensus Guidelines/Statements (KDOQI and FFBI)

- KDOQI - “Fistula placement should be considered first, followed by prosthetic grafts if fistula placement is not possible.”
  - What factors should be considered in vascular access selection? Vein size? Age? BMI? Comorbidities?
  - When is it OK to place an AV graft, Catheter?
- Process for developing consensus recommendations unreliable, non-standardized

How Can Vascular Access Selection Be Standardized/Optimized Without Level 1 Evidence?

- RAND/UCLA Appropriateness Method
  - Combines best evidence with expert opinion
  - Provides patient-specific recommendations
  - Standardized technique
  - High re-test reliability, predictive validity

Appropriateness criteria were developed for many procedures

- CABG
- Carotid endarterectomy
- AAA
- Bariatric procedures
- Low back surgery
- Cholecystectomy
- Hysterectomy
- Nephrectomy
- Colonoscopy
- Upper GI endoscopy
- Cataracts
- Tonsillectomy
- Myringotomy
- Sinus procedures
- Sentinel lymph node bx for melanoma
- Carpal tunnel syndrome

Factors Potentially Influencing Outcome

- Patient Age
- Timing – Dialysis imminent, on dialysis
- Vein size/quality
- Gender
- Diabetes mellitus
- Coronary artery disease
- BMI - Normal, obese, morbidly obese
- Artery size/quality
- Functional status - independent, dependent at home, dependent in a facility
RAND/UCLA Appropriateness Method

1. Systematic review of literature- Mayo Knowledge and Evaluation Research Unit
2. Develop patient-specific clinical scenarios for each vascular access procedure

Clinical Scenario Development

• AV Fistulas
  – Radial-cephalic fistula
  – Brachial-cephalic fistula
  – Forearm basilic transposition
  – Brachial-basilic transposition
  – Brachial-brachial transposition
• AV Grafts
  – Forearm AV graft
  – Upper arm AV graft
• Complex Accesses
  – Femoral vein transposition
  – Thigh AV graft
  – Chest wall AV graft
  – HeRO device
  – Catheter

Chapter 2

How appropriate is it to perform each of the listed operations on a patient who is age <60, pre-dialysis and has a 2-2.5 mm cephalic vein throughout the upper extremity?

Radial-cephalic fistula Brachial-cephalic fistula

Gender

i. Male
  51 (51-54)
  1 2 1 2 1 2 1 2

ii. Female
  55 (55-58)
  1 2 1 1 1 2 1 1

Diabetes

i. Yes
  59 (59-62)
  1 1 1 2 1 1 2 1

ii. No
  63 (63-66)
  1 2 1 1 2 1 1 1

RAND/UCLA Appropriateness Method

1. Systematic review of literature- Mayo Knowledge and Evaluation Research Unit
2. Develop patient-specific clinical scenarios for each vascular access procedure
3. Establish a panel of experts- surgeon and nephrologists

UCLA/RAND Appropriateness Method Team

Expert Panelists

– Michael Allon MD
– Eric Chemla MD
– Tom Huber MD
– Jeff Lawson MD
– Erik Peden MD
– Anton Sidawy MD

– Christopher Carsten MD
– Mitch Henry MD
– Tip Jennings MD
– Charmaine Lok MD
– Larry Scher MD

RAND/UCLA Appropriateness Method

1. Systematic review of literature- Mayo Knowledge and Evaluation Research Unit
2. Develop patient-specific clinical scenarios for each vascular access procedure
3. Establish a panel of experts- surgeons and nephrologists
4. Panelists individually grade the appropriateness of a procedure for each scenario
Identifying/Defining Appropriateness

Appropriateness

- Inappropriate: Harms of procedure outweigh Benefits
- Equivocal: Harms = Benefits
- Appropriate: Benefits of procedure outweigh Harms

Expert Panelist Score
- Inappropriate: 1-3
- Equivocal: 4-6
- Appropriate: 7-9

Chapter 2

How appropriate is it to perform each of the listed operations on a patient who is age <60, pre-dialysis and has a 2-2.5 mm cephalic vein throughout the upper extremity?

Gender

- Male: 482 (23%) appropriate, 703 (34%) inappropriate, 903 (43%) indeterminate
- Female: 467 (27%) appropriate, 405 (23%) inappropriate, 856 (49%) indeterminate

Diabetes

- Yes: 482 (23%) appropriate, 703 (34%) inappropriate, 903 (43%) indeterminate
- No: 467 (27%) appropriate, 405 (23%) inappropriate, 856 (49%) indeterminate

Early Results

- Upper extremity AVF creation
  - 2088 patient scenarios created
  - 482 (23%) appropriate
  - 703 (34%) inappropriate
  - 903 (43%) indeterminate
- Upper extremity AVG placement
  - 1,728 patient scenarios created
  - 467 (27%) appropriate,
  - 405 (23%) inappropriate
  - 856 (49%) indeterminate.

Plans

- Create a mobile phone application that surgeons/nephrologists can use to select the appropriate vascular access options for each patient scenario
- Publication of manuscript reporting initial results
- Validate results and refine app recommendations with further research